

CLAIMS

1. Biochip comprising a plurality of useful molecular recognition areas distributed with a determined layout to create a format of molecular recognition areas and means for making optical position marks for each
5 molecular recognition area (30), distributed with a determined layout to form an optical format, characterised in that the optical format and the format of recognition areas are formats produced independently of each other, means for determining the relative
10 position of the two formats being provided on the biochip.

2. Biochip according to claim 1, characterised in that the means for determining the relative position of
15 the two formats are molecular recognition areas intended to receive specific biological targets to obtain fluorescent patterns, these molecular recognition areas designed to receive specific biological targets being arranged at locations that are perfectly well located
20 with respect to useful molecular recognition areas.

3. Biochip according to either of claims 1 or 2, characterised in that the optical marking means consist of a sequence of engraved areas (2) and non-engraved
25 engraved (3).

4. Biochip according to claim 3, characterised in that the engraved areas (2) and non-engraved areas (3) form a checker board.

5 5. Biochip according to claim 4, characterised in that the areas of the checker board are oblique with respect to the molecular recognition areas.

10 6. Biochip according to any one of claims 3 to 5, characterised in that the surface area of each recognition area is greater than the surface area of an engraved area or a non-engraved area of the optical format.

15 7. Biochip according to any one of claims 1 to 6, characterised in that the molecular recognition areas are arranged on the optical format.

20 8. Biochip according to claim 7, characterised in that a layer or a stack of thin layers, facilitating reflection of an optical format tracking beam, is arranged between the optical format and the molecular recognition areas.

25 9. Device for reading a biochip (10) like that defined in claim 1, comprising:

- a first optical head capable of projecting first incident light onto the biochip,

- first means for scanning the biochip by the first incident light,

- a second optical head capable of projecting second incident light on the biochip,

5 - second means for scanning the biochip by the second incident light,

- a first optical system associated with an optical head to project first light originating from the biochip and related to the first incident light onto a first optoelectronic sensor, demonstrating the presence or
10 absence of target molecules on each molecular recognition area, the first optoelectronic sensor being capable of supplying signals corresponding to the first light,

- a second optical system associated with an optical
15 head to project second light originating from the optical format of the biochip and related to the second incident light onto a second optoelectronic sensor, the second optoelectronic sensor being capable of supplying signals corresponding to the second light,

20 - first means for recording at least part of the signals corresponding to the first light,

- second means for recording at least part of the signals corresponding to the second light,

- means for processing said signals to adjust the
25 signals corresponding to the first light and signals corresponding to the second light, on a fictitious biochip as a function of means of determining the relative position of the two formats.

10. Device according to claim 9, characterised in that the first and second optical heads are coincident.

11. Device according to either claim 9 or 10,
5 characterised in that it comprises a mechanical system or an autofocus system to maintain the focus of the reading beam on the surface of the biochip.

12. Device according to claim 11, characterised in
10 that the autofocus system includes a piezoelectric actuator and means for slaving this actuator.